UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0110

June 16, 2000

Mr. Tom Mueller
Chief, Regulatory Branch
U.S. Army Corps of Engineers, Seattle District
ATTN: Ms. Olivia Romano
P.O. Box 3755
Seattle, Washington 98124-2255

Re: Biological Opinion on Ridgefield National Wildlife Refuge Bank Stabilization Project (Corps Permit 99-591) Along the Columbia River at Ridgefield, Washington

Dear Mr. Mueller:

Enclosed is the National Marine Fisheries Service's (NMFS) biological opinion on the Ridgefield National Wildlife Refuge Bank Stabilization Project (permit number 99-591) as described in the U.S. Army Corps of Engineer's request for formal consultation dated May 19, 2000. This opinion addresses Snake River sockeye salmon, Snake River fall chinook salmon, Snake River spring/summer chinook salmon, Upper Willamette River chinook salmon, Upper Columbia River spring chinook salmon, Lower Columbia River chinook salmon, Snake River steelhead, Upper Columbia River steelhead, Middle Columbia River steelhead, Upper Willamette River steelhead, Columbia River chum salmon and Lower Columbia River steelhead and constitutes formal consultation for these listed species. The NMFS has determined that the proposed action is not likely to jeopardize the continued existence of those listed species. An Incidental Take Statement included in the biological opinion describes reasonable and prudent measures to minimize the level of incidental take associated with the proposed action.

Sincerely,

Michael R Crouse
for William Stelle, Jr.
Regional Administrator

Enclosure

Endangered Species Act - Section 7
Consultation

Biological Opinion

Ridgefield NWR
Bank Stabilization Project

Agency: Army Corps of Engineers, Seattle District

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: June 16, 2000

Refer to: OSB2000-0110

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I. BACKGROUND

On May24, 2000, the National Marine Fisheries Service (NMFS) received a request from the Seattle District Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation for issuance of a COE permit (Ridgefield NWR, # 99-591) for a bank stabilization project on the Columbia River near Ridgefield, Washington. In that letter, the COE determined that the species listed in Table 1 may occur within the project area and may be adversely affected by the proposed action.

The objective of this biological opinion (Opinion) is to determine whether the proposed action to stabilize the bank, through the use of riprap and vegetative plantings along the Columbia River, is likely to jeopardize the continued existence of the species listed in Table 1 or destroy or adversely modify designated critical habitat.

Table 1. References for additional background on listing status, biological information, and critical habitat elements for the listed and proposed species addressed in this biological opinion.

Species	Listing Status	Critical habitat	Biological Information, Population Trends
Snake River sockeye salmon	November 20, 1991, 56 FR 58619	December 28, 1993, 58 FR 68543	Waples *et al*. 1991a; Burgner 1991; ODFW and WDFW 1998
Upper Columbia River steelhead	August 18, 1997, 62 FR 43937	February 16, 2000 65 FR 7764	Busby *et al*. 1995; Busby *et al*. 1996; ODFW and WDFW 1998
Snake River Basin steelhead	August 18, 1997, 62 FR 43937	February 16, 2000 65 FR 7764	Busby *et al*. 1995; Busby *et al*. 1996; ODFW and WDFW 1998
Lower Columbia River steelhead	March 19, 1998, 63 FR 13347	February 16, 2000 65 FR 7764	Busby *et al*. 1995; Busby *et al*. 1996; ODFW and WDFW 1998
Upper Willamette River steelhead	March 25, 1999, 64 FR 14517	February 16, 2000 65 FR 7764	Busby *et al*. 1995; Busby *et al*. 1996; ODFW and WDFW 1998
Middle Columbia River steelhead	March 25, 1999, 64 FR 14517	February 16, 2000 65 FR 7764	Busby *et al*. 1995; Busby *et al*. 1996; ODFW and WDFW 1998
Columbia River chum salmon	March 25, 1999, 64 FR 14508	February 16, 2000 65 FR 7764	Johnson *et al*.1997; Salo 1991; ODFW and WDFW 1998

Snake River Fall chinook salmon	April 22, 1992, 57 FR 14653	December 28, 1993, 58 FR 68543	Waples *et al*. 1991b; Healey 1991; ODFW and WDFW 1998

Table 1 (cont). References for additional background on listing status, biological information, and critical habitat elements for the listed and proposed species addressed in this biological opinion.

Species	Listing Status	Critical habitat	Biological Information, Population Trends
Lower Columbia River chinook salmon	March 24, 1999, 64 FR 14308	February 16, 2000 65 FR 7764	Myers *et al*.1998; Healey 1991; ODFW and WDFW 1998
Snake River spring/summer chinook salmon	April 22, 1992, 57 FR 14653	December 28, 1993, 58 FR 68543 and October 25, 1999, 64 FR 57399	Matthews and Waples 1991; Healey 1991; ODFW and WDFW 1998
Upper Willamette River chinook salmon	March 24, 1999, 64 FR 14308	February 16, 2000 65 FR 7764	Myers *et al*.1998; Healey 1991; ODFW and WDFW 1998
Upper Columbia River spring run chinook salmon	March 24, 1999, 64 FR 14308	February 16, 2000 65 FR 7764	Myers *et al*.1998; Healey 1991; ODFW and WDFW 1998

II. PROPOSED ACTION

The proposed action involves placement of riprap and vegetative plantings in two areas of bankline of the Columbia River to protect the levee around the Ridgefield National Wildlife Refuge. One site (Bachelor Island Unit 1; B-1 site) will be 500' in length, starting 15' waterward from the mean higher high waterline. The other site (River S unit 5; RS-5 site) will be 1,120' in length, starting 30' waterward of the mean higher high waterline. The existing levee has experienced accelerated erosion in these two areas.

Placement of the riprap will occur "in the dry" at both sites to minimize any impacts to salmonids. In addition, the applicant has also indicated that native willows will be planted in the interstices and one tree with rootwad attached will be placed at the toe of the slope at the RS-5 site.

III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

Based on migratory timing, the NMFS expects that juvenile salmonids may be present in the action area during the proposed construction. However, the low flows in the Columbia River at this time would also allow the activity to occur in the dry. The proposed action would occur within proposed critical habitat.

The action area is defined by NMFS regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area includes designated critical habitat affected by the proposed action within the Columbia River (mile 91-92). This area serves as a migratory corridor for both adult and juvenile life stages of all listed species under consideration in this BO. Essential features of the adult and juvenile migratory corridor for the species are: (1) Substrate; (2) water quality; (3) water quantity; (4) water temperature; (5) water velocity; (6) cover/shelter; (7) food (juvenile only); (8) riparian vegetation; (9) space; and (10) safe passage conditions (50 CFR 226). The essential features this proposed project may affect are water quality (resulting from construction activities) and water velocity and safe passage conditions (as a result of structures placed in the river).

References on listing status, biological information and critical habitat elements can be found in Table 1.

IV. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: (1) defining the biological requirements of the listed species; and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed or proposed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential feature of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat, it must identify any reasonable and prudent measures available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the listed and proposed species under the existing environmental baseline.

A. Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NMFS starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination (Weitkamp et al. 1995, Myers et al. 1998).

The relevant biological requirements are those necessary for listed species to survive and recover to a naturally reproducing population level at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful downstream migration. The current status of the listed species, based upon their risk of extinction, has not significantly improved since the species was listed.

B. Environmental Baseline

The biological requirements of the listed species are currently not being met under the environmental baseline. Their status is such that there must be a significant improvement in the environmental conditions they experience over those currently available under the environmental baseline. Any further degradation of these conditions would have a significant impact due to the amount of risk they presently face under the environmental baseline.

The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream, based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation. For the purposes of this opinion, the action area is defined as the area of the Columbia River from river mile 91 to 92. Other areas of the Columbia River are not expected to be directly or indirectly impacted.

V. ANALYSIS OF EFFECTS

A. Effects of Proposed Actions

The NMFS expects that the effects of the proposed project will maintain the habitat elements at this site over the long-term (greater than one year). In the short term, temporary increases of sediment and turbidity, and disturbance of riparian habitat from accessing the levee can be expected.

In the long term, the increased stability of the site will reduce sedimentation. The current riparian habitat will be preserved and the placement of native vegetation within the interstices of the riprap will improve existing habitat conditions in the action area. The potential net effect from of the proposed action, including mitigation, is expected to maintain properly functioning stream conditions within the action area.

The armoring of the bank may increase habitat for predaceous fish species. However, the plantings within the interstices will minimize habitat for predators.

Short term increases in turbidity and sedimentation resulting from construction will be offset by reduced erosion of soil in the scour area. The amount and duration of any increase in turbidity will be limited because of the short time frame to complete the project and the small amount of material to be placed below the ordinary high water line. Any increase in turbidity because of construction would be offset by the reduced erosion and input of sediment from the project area under existing conditions.

B. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. For the proposed action, NMFS expects that the effects will tend to maintain properly functioning conditions in the watershed under current baseline conditions over the long term. The existing channel edge provides poor habitat for juveniles due to lack of vegetation. The commitment to provide increased native vegetation within the armoring interstices will provide a net benefit to the listed species by increasing cover and organic input (through leaf litter and invertebrates).

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal

action subject to consultation." For the purposes of this analysis, the action area is defined as the applicant's property. Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes and are not considered cumulative to the proposed action.

NMFS is not aware of any significant changes in non-Federal activities that are reasonably certain to occur. NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

VI. CONCLUSION

NMFS has determined, based on the available information, that the proposed action is expected to maintain properly functioning stream conditions within the action area. Consequently, the proposed action covered in this Biological Opinion is not likely to jeopardize the continued existence of the species listed in Table 1 or adversely modify designated critical habitat. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS believes that the proposed action would cause a minor, short-term degradation of anadromous salmonid habitat due to sediment impacts and in-water construction. These effects will be balanced in the long-term through the habitat enhancement activities.

VII. REINITIATION OF CONSULTATION

Consultation must be reinitiated if: The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To re-initiate consultation, the COE should contact the Habitat Conservation Division (Oregon Branch Office) of NMFS.

VIII. REFERENCES

Burgner, R.L. 1991. Life history of sockeye salmon (*Oncorhynchus nerka*). Pages 1-117 *In:* Groot, C. and L. Margolis (eds.). 1991. Pacific salmon life histories. Vancouver, British Columbia: University of British Columbia Press.

Busby, P., S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (*Oncorhynchus mykiss*) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act. 102 p. plus 3 appendices.

Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFSC-27, 261p.

Healey, M.C. 1991. Life history of chinook salmon (*Oncorhynchus tshawytscha*). Pages 311-393 *In:* Groot, C. and L. Margolis (eds.). 1991. Pacific salmon life histories. Vancouver, British Columbia: University of British Columbia Press.

Johnson, O.W., W.S. Grant, R.G. Cope, K. Neely, F.W. Waknitz, and R.S. Waples. 1997. Status review of chum salmon from Washington, Oregon, and California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-32, 280 p.

Matthews, G.M. and R.S. Waples. 1991. Status review for Snake River spring and summer chinook salmon.

U.S. Dept. Commer., NOAA Tech. Memo. NMFS-F/NWC-200, 75 p.

Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples. 1998. Status review of chinook salmon from Washington, Idaho, Oregon, and California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-35, 443 p.

ODFW and WDFW. 1998. Status Report Columbia River Fish Runs and Fisheries, 1938-1997. 299 pp.

Salo, E.O. 1991. Life history of chum salmon (*Oncorhynchus keta*). Pages 231-309 *In:* Groot, C. and L. Margolis (eds.). 1991. Pacific salmon life histories. Vancouver, British Columbia: University of British Columbia Press.

Waples, R.S., O.W. Johnson, and R.P. Jones, Jr. 1991a. Status review for Snake River sockeye salmon. U.S. Dept. Commer., NOAA Tech. Memo. NMFS F/NWC-195. 23 p.

Waples, R.S., R.P. Jones, Jr., B.R. Beckman, and G.A. Swan. 1991b. Status review for Snake River fall chinook salmon. U.S. Dept. Commer., NOAA Tech. Memo. NMFS F/NWC-201. 73 p.

Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status review of coho salmon from Washington, Oregon and California. National Marine Fisheries Service, Northwest Fisheries Science Center, Seattle, Washington.

IX. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful

activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of species listed in Table 1 because of detrimental effects from increased sediment levels (non-lethal) and the potential for mortality resulting from creation of predaceous fish habitat. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the Biological Assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion. The extent of the take is limited to the project area.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of the above species.

1. To minimize the amount and extent of incidental take from construction activities, measures shall be taken to time such work to occur when listed fish are absent; and to implement effective pollution control measures to minimize the movement of soils and sediment both into and within the stream channel.
1. To minimize the amount and extent of take from loss of habitat, and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian habitat, or where impacts are unavoidable, to replace lost riparian habitat function.
2. To ensure effectiveness of implementation of the reasonable and prudent measures, all plantings shall be monitored and meet criteria as described below in the terms and conditions.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the COE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1a. All work below the ordinary high water line will be completed during low flow periods and in the dry.
1b. All equipment that is used for work along the beach will be cleaned prior to entering the job site. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment. Areas for fuel storage and servicing of construction equipment and vehicles will be located on the side of the dike isolated from the Columbia River.
2a. Native woody vegetation shall be placed within the interstices of the riprap at a maximum of 10' centers.
3a. The applicant shall monitor the success of plantings within, and adjacent to, the armored area. The applicant will supply a monitoring report to the COE that shall include photos of the plantings in the project area. The monitoring should be done one year following construction, and again at year 3 and year 5.
3b. Failed plantings will be replaced yearly, for a period of 5 years.